

**CLAIMS**

1. A surface sensing device for use in position determining apparatus and which includes a hollow stylus having a workpiece-contacting tip and an optical transducer system, said optical transducer system comprising a light source for producing a beam of light directed internally of the stylus towards the tip of the stylus, and a detector positioned relative to the beam to receive the beam and to produce a signal indicative of the lateral displacement of the stylus tip.
2. A surface sensing device according to claim 1 wherein the light source and the detector are mounted to fixed structure to which the stylus is connected and an optical component is mounted adjacent the tip of the stylus to return the beam to the detector.
3. A surface sensing device according to claim 2 wherein the optical component is a retro-reflecting device which is substantially insensitive to tilting of the stylus tip.
4. A surface sensing device according to claim 1 wherein the stylus forms part of a stylus assembly which comprises a relatively stiff stylus carrier and a relatively flexible stylus.
5. A surface sensing device according to claim 4 wherein the stylus carrier is connected to a housing of the device and the light source and detector are mounted to the housing.